

Postdoc Software Engineer with Algorithms, Radar Signal Processing & Embedded Systems Expertise

I like everything tech related, but especially system-design, comms, and coding, and I'm good at it. My skill set can be best described "*jack of all trades, master of none*". I learn fast and only the necessary parts. Relevantly, I love sharing ideas & knowledge. I'm mainly enthusiastic about space, aviation & related technologies. Apart from my work I'm passionate about skydiving, swimming & skiing.

Education

PhD. Microwave Integrated Systems Laboratory, EESE, University of Birmingham, UK	10/2013 – 9/2017
MSc. System-on-Chip Design, Royal Institute of Technology, Stockholm, SWEDEN	8/2010 - 5/2013
BSc. Honours Electrical and Electronics Engineering, Bilkent University, Ankara, TURKEY	8/2006 - 6/2010
Middle East Technical University Development Foundation Private High School, Ankara, TURKEY	8/2003 - 6/2006

Work Experience

Technical Lead , Novit.AI, Ankara, TURKEY/London, UK	2/2019 - Current
Development of machine learning systems, processing data from spaceborne SAR and multispectral instruments, continuous integration and deployment, embedded development, novel mesh networking methodologies, system design, project planning and management with direct report, management of a software dev team of 3, client engagement.	
Research Fellow , Microwave Integrated Systems Laboratory (MISL), Birmingham, UK	9/2016-12/2018
Development of radar systems, hardware design & implementation, signal processing algorithm development, modelling & simulation, planning & conducting trials, data processing, documentation & presentation of results to stakeholders, project planning & managing, and managing students	
System Engineer/Founder , Nocta Technologies, Ankara, TURKEY	6/2012 - 9/2013
System design, project management, task distribution, firmware development, client software implementation, running simulations, testing, documentation and presentation of progress to stakeholders, general research & development activities. Company was awarded a grant by Turkish Ministry of Science, Industry & Technology.	

Projects

Thermidor – Self-service temperature measurement kiosk with camera and logs (thermidor.ai)	3/2020 – 9/2020
An IR based temperature measurement device to replace personnel based measurements in building entrances.	
Skybase – GIS for comparing NO2 emissions of major cities (emissions.novit.ai)	3/2020 – 5/2020
Sentinel-5 NO2 data processing & GIS interface project for highlighting the effects of Covid19 regarding exhaust emissions.	
Shale Track – Spaceborne Shale Site Detection and Construction Timeline Tracking	12/2019 – 2/2020
A fork of Shlep's AI modules to detect Shale sites using optical satellite images and to track their progress via SAR images.	
Sonon – Geospatial Information Service for Verifying Marine Vessel Voyage History	9/2019 – 1/2020
Geospatial AIS data aggregation, storage and service project for Turkish Customs to verifying ships' voyage history.	
SHLEP – Ship Location Extrapolator Project	3/2019 – 2/2020
AI project to identify and classify oil tankers in major oil tankers on Earth with maximum 4-day intervals.	
Edge AI Comms Unit – Multi-spectrum Comms Module for Edge AI Unit	2/2019 - 5/2019
A LoRa and Wifi dual-layer mesh network to deliver data from an Edge AI unit to an MQTT server	
PASSAT II - Passive micro-satellite based Spaceborne Synthetic Aperture Radar (SAR)	9/2017 - 9/2018
Persistent large area monitoring. Affordable Space-Based Capability, UK Centre for Defence Enterprise	
SPYGLASS - Galileo-based passive Radar System for Maritime Surveillance	7/2017-11/2017
Horizon 2020, European GNSS Agency	
SIMITAR II - Persistent surveillance from air with a low frequency MIMO towed array radar	9/2016 - 6/2017
Persistent surveillance from the air, UK Centre for Defence Enterprise	
MIMO Sensor Array Optimisation for Short-Range High-Resolution Automotive Sensing	10/2013 - 6/2016
PhD Funded by Jaguar Land Rover	
Centralised Swarm AI system for MavLink enabled Unmanned Vehicles	6/2012 - 9/2013
Nocta Technologies, Turkish Ministry of Science, Industry & Technology	
VHF/UHF Uplink Solutions for Remote Wireless Sensor Networks	2/2012-12/2012
TFTP/UDP/IP over ad-hoc software defined radio link using amateur bands to relay data from a WSN, KTH Sweden	

Publications

Improved Passive SAR Imaging With DVB-T Transmissions	01/2020
Reduced Redundancy Ultrasonic MIMO Arrays using Simulated Annealing & Genetic Algorithms	12/2019
Passive radar using Starlink transmissions: A theoretical study	12/2018
Passive SAR satellite constellation for near-persistent earth observation: Prospects and issues	12/2018
Passive SAR Satellite System (PASSAT): airborne demonstrator and first results	10/2018
Passive SAR Satellite System (PASSAT): Ground Trials	08/2018
MIMO Array for Short-Range, High-Resolution Automotive Sensing	07/2018
MIMO Radar Concept with a Towed Antenna Array	10/2016
VHF/UHF Uplink Solutions for Remote Wireless Sensor Networks, MSc. Thesis	05/2013

Teaching Experience

Module Coordinator and Instructor for CS431 Embedded Systems, Bilkent University	6/2019 – 1/2021
Instructor for Ceng232 Logic Design, Middle East Technical University	1/2020 - 7/2020
Instructor for CS223 Digital Design, Bilkent University	9/2019 – 1/2020
3xBSc Final Project, 3xMSc and 1xPhD “shadow supervisor”, University of Birmingham	3/2018 – 9/2018
TA for “Communication Systems”, “Computer Systems”, “Computing Systems & C Programming”, “Computer Networking”, “Circuits, Devices & Fields” modules, University of Birmingham	1/2014 - 6/2018
Team Coach for Communications System Design 2012 Fall Project, KTH Royal Institute of Technology	8/2012 - 1/2013
TA and private tutor for CS101(MATLAB), CS102(Java) and EEE212(Assembly) at Bilkent University	8/2008 - 6/2010
Volunteer English teacher in Southeast Turkey to local entrepreneurs organized by Bilkent Uni MAN dept.	8/2007

Technical Experience

Remote Sensing: MIMO Radar, Phased Array, Digital Beamforming, SAR, MTI, Doppler, Passive Bistatic, Airborne and Spaceborne, Sonar, Ultrasonic Sensing, Signal Processing, RF front-end, Automotive, Surveillance, Defence

Embedded Systems: Embedded software, Multi-core programming, FPGA programming, Low-level communications (RS232, I2C, Ethernet etc.), Wireless Sensor Networks, Network Applications, Client/Server programming, IoT (Internet of Things), FreeRTOS, micropython, uC/OS, TinyOS, Contiki-OS, Embedded hardware, PCB design

Other: System Design, Algorithm Development, Heuristics, Machine Learning, Software Optimisation, Software Development, Project Planning and Management, Knowledge Transfer, Risk Assessment, Time Management

Languages: MATLAB, Python, C/C++, Java, VHDL, SystemVerilog, Bash, Assembly, HTML, CSS, Javascript

Environments: MATLAB, NI LabView, Keil, Eclipse, Quartus, Xilinx ISE, Modelsim, Gpl-Eda, Netbeans, Proteus, Git, Linux

Other

Committee Member and Advisor for University of Birmingham Skydiving Society	10/2016 – 1/2019
Trained with the University of Birmingham Triathlon Team & Swimming Team	9/2016 – 9/2018
Founding member and Secretary of University of Birmingham Drone Society	6/2016 – 8/2017
Licensed Radio Amateur: TA2IAS	9/2013 – 9/2023
Spoken Languages: Turkish (Native), English (Near-native)	